

MOOSE ANNUAL SURVEY AND INVENTORY PERFORMANCE REPORT

STATE: Alaska

GRANT AND SEGMENT NR.: W-27-4

PROJECT NR.: 1.0

WORK LOCATION: Statewide

PROJECT LOCATIONS: Game Management Regions 1, 2, 3, and 5

PROJECT TITLE: The Status of Alaska Moose and Factors Influencing Their Populations

PERIOD: 1 July 2000–30 June 2001

The Status of Alaska Moose and Factors Influencing Their Populations in Region I

Regionwide Activities

1. *Draft a moose management report.* Area biologists collected data to be used in the final report, due to headquarters in spring 2002.
2. *Write an annual survey and inventory performance report.* This draft satisfies the activity as described.
3. *Provide information on moose to the Board of Game.* During fall 2000 Region I staff provided detailed information to the Board on moose populations and harvest trends around the region. Of particular importance was information on the Gustavus Forelands moose hunt, which has shown a dramatic increase in effort and harvest. The Board adopted a drawing cow season for that herd. A total of 219 moose were harvested during the year in Region I.

Unit 1A

Assess harvest by use of registration permits (including the collection of incisors for aging and photos of antlers) and collect anecdotal information about the Unuk/Chickamin population through contacts with hunters and by conducting one aerial sex and age composition survey in the Unuk and Chickamin drainages.

Staff in the Ketchikan area office collected hunt-based information through use of registration permit reports and the collection of incisors and antler photos, discussed the moose herd with hunters and others, and flew one aerial survey in the Unuk River and Chickamin River valleys. Eighteen moose were counted in the Unuk herd.

Unit 1B

1. *Monitor harvest by use of registration permits (including the collection of incisors for aging and photos of antlers) and fly a minimum of one fall aerial sex and age composition survey each of the Stikine River and Thomas Bay populations.* Staff in the Petersburg area office collected hunt-based information through use of registration permit reports and the collection of incisors and antler photos. Two winter aerial surveys and 2 late spring sex and age composition aerial surveys were conducted on the Stikine River herd. No aerial surveys were conducted on the Thomas Bay herd. Forty-six moose were counted in the Stikine herd.
2. *Monitor habitat conditions in the Thomas Bay area by ground surveys of willow browse, using standard counts of number of leaders, amount of annual production, and level of browsing by moose.* There were no browse surveys conducted in the Thomas Bay area during the regulatory year.
3. *Conduct at least one spring aerial sex and age composition survey of the Unit 1B moose population.* Two calf/adult aerial surveys were completed for the Stikine River moose herd in spring 2001.

Unit 1C

1. *Monitor harvest by use of registration and drawing permits (including the collection of incisors for aging and photos of antlers) and fly at least one sex and age composition survey each of the Berners Bay, Taku River, Endicott River/St. James Bay, and Gustavus Forelands populations.* Staff in the Douglas area office collected hunt-based information through use of registration and drawing permit reports and the collection of incisors and antler photos, and flew one aerial survey each of the Berners Bay, Taku, and Gustavus Forelands herds. A total of 448 moose were enumerated in Unit 1C, including 125 in Glacier Bay NP. No surveys were flown of the Endicott River/St. James Bay population.
2. *Monitor habitat conditions on the Gustavus Forelands by ground surveys of willow browse, using standard counts of number of leaders, amount of annual production, and level of browsing by moose.* Browse surveys on the Gustavus Forelands were carried out on two occasions during the regulatory year. Results of the surveys were analyzed and presented to moose hunters in Gustavus and utilized during Board of Game deliberations.

Unit 1D

1. *Monitor harvest by use of Tier II registration permits (including the collection of incisors for aging and photos of antlers) and fly at least one sex and age composition survey of the Chilkat Valley population.* Staff in the Douglas area office collected hunt-based information through use of Tier II permit reports and the collection of incisors and antler photos, and flew one aerial survey of the Chilkat Valley moose herd where 222 moose were counted.
2. *Monitor habitat conditions in the Chilkat Valley by ground surveys of willow browse, using standard counts of number of leaders, amount of annual production, and level*

of browsing by moose. There were no browse surveys conducted in the Chilkat Valley during the regulatory year.

Unit 2

The public has reported occasional sightings of moose in this unit. We have established no population objectives for Unit 2.

Unit 3

1. *Monitor harvest by use of registration permits (including the collection of incisors for aging and photos of antlers).* Staff in the Petersburg area office collected hunt-based information through use of registration permit reports and the collection of incisors and antler photos.
2. *Collect anecdotal information about moose populations on Mitkof, Wrangell, Kupreanof and adjacent islands.* Staff in the Petersburg area office discussed the moose herd with hunters from Petersburg, Kake, Wrangell, and other locations.

Unit 5

Monitor the moose harvest by use of registration permits (including the collection of incisors for aging and photos of antlers) and fly at least one sex and age composition survey each for the Yakutat Forelands, Nunatak Bench, and Malaspina Forelands populations. Staff in the Douglas area office collected hunt-based information through use of registration permit reports and the collection of incisors and antler photos, and counted 365 moose in one aerial survey of the Yakutat Forelands herd.

Regional Segment Period Project Costs: \$75.0

The Status of Alaska Moose and Factors Influencing Their Populations in Region II

Regionwide Activities

Activity 1: Draft a moose management report.

Draft moose management reports will be prepared during spring 2002.

Activity 2: Write an annual survey and inventory performance report.

This report completes this activity.

Activity 3: Provide information on moose to the Board of Game.

Region 2 moose regulations were addressed during the spring 2001 Board of game meeting

Activity 4: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Surveys were conducted in all areas where conditions allowed.

Activity 5: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

Results are presented below.

Activities by Unit

Unit 6

Activity 1: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Unit 6A East 2000–01 survey:

Calves (%)	Unidentified Adult	Total	Population Estimate
25 (13)	164	189	N/A

Unit 6B 2000–01 survey:

Calves (%)	Unidentified Adult	Total	Population Estimate
19 (11)	159	178	N/A

Unit 6C 2000–01 Census:

Calves (%)	Unidentified Adult	Total	Population Estimate
30 (10)	278	308	354

Activity 2: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Unit 6 2000–01 harvest was:

Males 79	Females 12	Total 91
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Units 7 and 15

Activity 1: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Poor weather and inadequate snow conditions precluded most fall composition surveys. Only one survey was completed (07Z CA07). Results included 31 bulls, 5 calves, and 62 cows. In addition, one late winter survey was completed in the Unit 7 Federal subsistence hunt area near Kings Bay (3 bulls, 3 cows, and 3 calves). One late winter survey was also completed in Unit 15C (15C CA26) to determine if there were enough moose to issue permits for an antlerless moose hunt. Survey results showed 256 adults and 73 calves and no antlerless permits were issued for the 2001 season.

Activity 2: Provide information on moose to the Board of Game. The Board of Game met in March, 2001 to review proposals to change moose hunting regulations on the Kenai peninsula. No regulatory changes were made to the Kenai management system.

Activity 3: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Units 7 and 15 2000–01 general season harvest was:

Males 435 Females 0 Total 435

The harvest for all permit hunts held on the Kenai peninsula is summarized in Table 1.

Table 1. Kenai Peninsula moose drawing permit hunt summary, 2000.

Hunt area	Permits issued	Number		Percent success	Harvest			Total
		of hunters			Male	Female	Unknown	
DM522	25	17	24%		4	0	0	4
DM530	14	7	29%		2	0	0	2
DM531	14	11	18%		2	0	0	2
DM532	6	2	0%		0	0	0	0
DM533	6	4	0%		0	0	0	0
DM534	12	5	0%		0	0	0	0
DM535	12	8	63%		5	0	0	5
DM536	8	5	40%		2	0	0	2
DM537	9	5	40%		2	0	0	2
DM538	10	7	43%		3	0	0	3
DM539	10	8	13%		1	0	0	1
Totals	126	79	27%		21	0	0	21

Unit 15A:

Activity 4: Provide opportunities to view moose in cooperation with requirements of the Kenai Refuge(Skilak Loop Wildlife Management Area).

Activity 5: Conduct fall moose census (modified Gasaway).

In February 2001 we completed a moose census using methods developed by VerHoef. Using this method we estimated the moose population in Unit 15A at 2067 (95% Confidence intervals 1704 – 2431).

Unit 15B:

Activity 6: Conduct fall moose census (modified Gasaway).

In February 2001 we completed a moose census using methods developed by VerHoef. Using this method we estimated the moose population in Unit 15B at 958 (95% Confidence intervals 777 – 1139).

Unit 15C:

Activity 7: Conduct fall moose census (modified Gasaway).

Units 15A and 15B were priority areas to census in 2000 and were completed. This census in 15C was rescheduled for 2001

Unit 9

Activity 1: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Poor snow conditions in late 2000 curtailed survey efforts. Only the Branch River trend area in Unit 9C was completed; 306 moose were classified and ratios were 33 bulls and 7 calves per 100 cows.

Activity 2: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Unit 2000–01 harvest was:

Males 173	Females 2	Total 176
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Units 11 and 13

Activity 1: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Composition surveys were flown during November in nine distinct count units

Unit 13	Bulls 564	Cows 2709	Calves 301	Total Moose
3574				

Unit 11	Bulls 58	Cows 37	Calves 9	Total Moose
104				

Activity 2: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

Unit 13	Hunters 3417
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Unit 11	Hunters 108
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The preliminary Unit 2000–01 harvest was:

Unit 13	Males 499	Females 3	Total Harvest 502
Unit 11	Males 30	Females 0	Total Harvest 30

Unit 14 A and B

Activity 1: Draft biennial moose management report.

Completed June 1998–July 2000 Unit 14A and Unit 14B moose management reports.

Activity 2: Write an annual survey and inventory performance report.

Activity 3: Provide information on moose to the Board of Game.

Reported to Board of Game population status and trend and harvest information for regulation proposal deliberation during March 2001 meeting. The information was pertinent to 15 proposed changes.

Activity 4: Conduct a fall moose census (modified Gasaway) and super-stratification surveys in select areas.

Conducted modified Becker survey in Unit 14A between 1-4 December and identified 1,693 moose. The 14A population estimate was 5,552 +/- 10% (80%CI) moose with 18 bulls and 37 calves:100 cows. Cost was \$8,630.

Conducted spring composition in 14A and identified 633 moose with an overall composition of 21% calves, which was down slightly from 24% calves in the fall 2000.

Activity 5: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary 2000–01 harvest was:

Unit 14A	Males 300	Females 1	Total	306
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Unit 14B	Males 55	Females 0	Total	55
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An additional 14 moose were killed by trains (7 in 14A and 7 in 14B) and 147 were killed by highway vehicles (133 in 14A and 14 in 14B).

Unit 14 C

Activity 1: Conduct a fall moose census (modified Gasaway) on Fort Richardson and Elmendorf Air Force Base in cooperation with the military.

No census flown due to lack of snow.

Activity 2: Conduct fall aerial sex and age composition counts.

Surveys flown in 3 count areas (too late for accurate bull:cow and calf:cow ratio):

Adults/yearlings 271	Calves 45	Total	316
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Activity 3: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Unit 14 C 2000–01 harvest was:

Males 64	Females 25	Total	89
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Activity 4: Provide information on moose to the Board of Game.

Board of Game met March 2001 and discussed 6 moose hunting proposals specific to Unit 14C. All proposals passed.

Unit 16

Activity 1: Draft biennial moose management report.

Completed June 1998-July 2000 Unit 16A and Unit 16B moose management reports.

Activity 2: Write an annual survey and inventory performance report.

Activity 3: Provide information on moose to the Board of Game.

Reported to Board of Game population status and trend and harvest information for regulation proposal deliberation during March 2000 meeting. The information was pertinent to 19 proposed changes.

Activity 4: Conduct aerial sex and age population composition surveys in all units to determine status, trend, productivity, and mortality of moose.

Conducted modified Becker survey in Unit 16A between 17–25 November and identified 787 moose. The 16A population estimate was 2,420 +/- 22% (80% CI) moose with 28 bulls and 22 calves: 100 cows. Cost was \$5,850.

Conducted modified Becker survey in Unit 16B-North between 20–22 November and identified 268 moose. The 16B-North population estimate was 909 +/- 20% (80% CI) moose with 39 bulls and 7 calves: 100 cows. Cost was \$7,522.

Conducted general sex and age composition survey in Unit 16B-South on 16 December and identified 98 moose under poor sightability. The composition of the observed moose was 13% calves. Cost was \$854.

Conducted general sex and age composition survey of Kalgin Island on 20 December under fair to poor conditions. The composition of 50 observed moose was 25 bulls and 54 calves: 100 cows.

Activity 5: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary 2000–01 harvest was:

Unit 16A	Males 138	Females 0	Total	139
Unit 16B	Males 251	Females 45	Total	296

An additional 20 moose were killed by highway vehicles .

Unit 17

Activity 1: Conduct a spring moose census (modified Gasaway) in the western portion of Unit 17B.

Estimate: 1,202 (+/- 141) moose

Activity 2: Monitor the moose harvest through field observations, hunter harvest reports, and contact with hunters.

The preliminary Unit 2000–01 reported harvest was:

Males 370 Females 0 Total 370

Other activities funded by Federal Aid on this project:

None

Segment Period Project Costs:

Fiscal year	Region			
2000–2001	II	III	V	Total
Actual	321.9			

The Status of Alaska Moose and Factors Influencing Their Populations in Region III

Regionwide Activities

ACTIVITY 1: WRITE AN ANNUAL SURVEY AND INVENTORY PERFORMANCE REPORT.

We wrote annual performance reports for all units.

Activity 2: Provide information to the Board of Game on moose management during the regulatory process.

Information provided to the Board of Game included intensive management objectives for various units, management planning in Units 21C and 24, and population status and trend in Unit 19.

Activities by Unit

Units 12

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

In conjunction with USFWS, we estimated a population of 3,416 moose in a 5,818 mi² area that included all of Unit 12, north of Wrangell-St. Elias National Park and Preserve. Calf and bull:100 cow ratios were 21.3 and 48.0:100, respectively.

The Alaska Board of Game established the Unit 12 moose population and harvest objectives as 4,000-6,000 and 250-450, respectively. The bull:cow ratio objective will remain the same.

Activity 2: Assess mortality factors.

During 11-12 June 2001, we met with elders from Northway Village and White River First Nation (Yukon, Canada), and staff from Yukon Department of Renewable Resources to discuss a number of wildlife issues including the historical and present significance of potlatches and how potlatch moose harvest is effecting the moose population. Participants agreed to a moose conference with all the Unit 12 villages in October 2001 to further discuss moose management.

Activity 3: Cooperate with Alaska Division of Forestry in developing an Upper Tanana Valley Logging/Wildlife Habitat Plan. We will assist state forestry in designing and

implementing scarification techniques that will promote willow and aspen regeneration following logging.

We continued to work with the Division of Forestry to develop a logging/habitat enhancement project. We established permanent transects to monitor vegetation, furbearer, and moose responses to logging and different scarification methods.

We continued to work with the Division of Forestry to complete the final prescribed burn plan for the Robertson River drainage. Planned ignition date is summer 2002.

Units 19, 21A and 21E

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We conducted a trend count in Unit 19D and we conducted a density estimate in a portion of subunit 19A (Aniak Drainage), estimating 0.7 /moose/sq. mile. We also contacted hunters during hunting season and evaluated harvest data from harvest reports in all subunits. Harvest totaled 775 moose.

Activity 2: Assess mortality factors.

As part of the 19D (East) moose research program, we collared 40 moose, including 25 adults and 15 yearlings in March. We conducted a calf mortality study beginning in May and collared 66 calves in 19D east. During June we collared an additional 10 adult cow moose in eastern 19D east. All moose were radiotracked on a regular basis to collect distribution and movement data and monitor calf and adult mortality.

Activity 3: Conduct a moose population estimation survey (geo-spatial population estimate) in Unit 19D (east).

We conducted a population estimation survey in Unit 19D (East) and estimated a density of 0.16 moose/sq. mile.

Activity 4: Start drafting population objectives for the area.

An adaptive management team was formed to help set objectives and plan activities in Unit 19D (East).

Unit 20A

Activity 1: Conduct Geo-Statistical Population estimator, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We conducted a fall moose population estimation and stratification surveys (23 bulls:100 cows unit wide, 22 bulls:100 cows in the Tanana Flats, 28 bulls:100 cows in the Eastern Foothills/Mountains, and 23 bulls:100 cows in the Western Foothills/Mountains; 10,557 \pm 18% moose). We stratified 468 survey units (2575 mi²).

We conducted moose twinning rate (4%, $n = 28$) surveys.

Activity 2: Assess mortality factors.

We analyzed harvest report information (RY 2000 general harvest = 540 bulls; permit hunt (DM760, DM762, DM764) harvest = 72 cows).

Unit 20B

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We conducted a fall moose population estimation and stratification surveys (Minto Flats Management Area trend area: 31 bulls:100 cows, population estimate = $2200 \pm 14\%$, $n = 714$). We stratified 979 Survey Units (5385 mi²).

We conducted moose twinning rate (12%, $n = 84$) surveys.

Activity 2: Assess mortality factors.

We analyzed harvest report information (RY 2000-2001 general hunt harvest = 593 bulls; DM788 = 27 cows; TM785 = 28 bulls and 25 cows).

Units 20C 20F and 25C

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

During the 2000-2001 season the reported harvest include 131 bulls in 20C, 40 bulls in 20F and 80 bulls in 25C.

Activity 2: Assess mortality factors.

We analyzed harvest information and recorded nonhunting mortalities that were observed.

Activity 3: Stratify Units 20C and 20F for relative moose abundance and complete a Geo-Statistical Population Estimator for the moose populations in these units.

We completed a stratification of 20C outside of Denali National Park and Preserve on 19 December 2000.

Activity 4: Start drafting population objectives for the area.

No progress was made toward drafting new population objectives because of limitations on personnel time.

Unit 20D

Activity 1: Conduct Geo-Statistical Population Estimate, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We conducted a population estimate south of the Tanana River during November and December 2000. Thirty-eight sample units were surveyed. The resulting population estimate was 3,932 moose \pm 17.5%.

Hunters were contacted in the field during the 2000 hunting season to determine their opinions on population trends and regulations and to check for harvest and regulatory compliance.

Activity 2: Assess mortality factors.

Harvest was analyzed for the 2000 hunting season. Harvest increased from previous years to 235 moose reported taken.

Unit 20E

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

The Alaska Board of Game established the moose population and harvest objectives for that portion of Unit 20E within the Fortymile River drainages as 8,000-10,000 and 500-1,000, respectively.

We completed population estimation surveys in a 1,933 mi² area in southwestern Unit 20E (1,115 moose) and in a 1,821 mi² area in eastern Unit 20E (1,272 moose) during October and November 2000.

Monitored harvest and hunter distribution by aerial survey, in field hunter contacts, and review of harvest reports. Unit-wide, 516 hunters harvested 135 bull moose during the general hunt.

Administered drawing permit hunt DM794 (8 permits, 3 hunters; 3 bulls harvested) and DM796 (25 permits, 15 hunters, 9 bulls harvested).

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to aid the Board of Game in establishing population objectives.

Unit 21B

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

In conjunction with the USFWS counted 432 moose during fall aerial trend surveys at

Sulatna River (226) and Novi Mouth (206).

Estimated a population of 2,324-3,530 moose for the 4,871 mi² of Unit 21B.

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to estimate the population in a portion of the unit.

Activity 3: Assist US Fish and Wildlife Service in the operation of a hunter checkstation on the Nowitna River.

In conjunction with the USFWS, we stationed personnel at the Nowitna checkstation for 20 days and checked 154 hunters.

We estimated a preliminary harvest of 52 moose using checkstation and statewide harvest data.

Unit 21C

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We estimated a population of 1,284-1,651 moose for the 3,671 mi² of Unit 21C.

We estimated a preliminary harvest of 25 moose using harvest ticket data.

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to estimate the population in a portion of the unit.

Activity 3: Conduct a hunter checkstation on the Koyukuk River.

We operated the Koyukuk River checkstation for 33 days and checked 415 hunters

Unit 21D

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

In conjunction with the USFWS we counted 873 moose during fall aerial trend surveys at Dulbi Mouth (385), Kaiyuh Slough (224), and Squirrel Creek (264).

We estimated a population of 8,000-9,000 for the 12,113 mi² of Unit 21D.

We estimated a preliminary harvest of 370 moose using checkstation and harvest ticket data.

We conducted late-winter aerial trend survey at Three Day Slough and counted 361 moose.

We conducted spring calving surveys and counted 150 moose.

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to estimate the population in a portion of the unit.

Activity 3: Operate a hunter checkstation on the Koyukuk River.

We operated the Koyukuk River checkstation for 33 days and checked 415 hunters.

Unit 24

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We estimated a preliminary harvest of 221 moose using checkstation and harvest ticket data.

In conjunction with the USFWS and BLM, we counted 1,692 moose during fall aerial trend surveys at Kanuti Canyon (87), Henshaw Creek (43), Wild River (15), Middle Fork of the Koyukuk River (62), Huslia River Flats (591), and Treat Island (894)

We estimated a population of 7,500-10,500 for the 26,055 mi² of Unit 24.

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to estimate the population in a portion of the unit.

Activity 3: Operate a hunter checkstation on the Koyukuk River.

We operated Koyukuk River checkstation for 33 days and checked 415 hunters.

Units 25A, 25B, and 25D

Activity 1: Conduct trend area surveys, evaluate harvest reports, contact hunters and make field observations to determine population status and trend.

We conducted a moose population survey in eastern Unit 25D, resulting in an estimate of 726 moose (+/- 25%) in a 2936 mi² survey area. Estimated population composition included 79 bulls and 49 calves per 100 cows.

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to help estimate the population in a portion of the unit.

Activity 3: Start drafting population objectives for the area.

A moose management planning effort was initiated for Units 25A, B and D. Information on the status of moose populations and management issues was distributed through newsletters and other media.

Units 26B and 26C

Activity 1: Conduct trend area surveys during spring 2001 in established count areas and make field observations to determine population status and trend.

We completed aerial population surveys in April 2001. Seventy moose were observed in 26B West and 146 moose were observed in 26B East. No surveys were completed in 26C except along the east bank of the Canning River.

Activity 2: Assess mortality factors.

Hunting and nonhunting sources of mortality were assessed to help interpret population surveys.

Segment Period Costs:

<i>Expenditure</i>	Personnel Months	Personnel Costs	Operating Costs	<i>Total Costs</i>
<i>Planned</i>	35.0	198.3	133.0	331.3
<i>Actual</i>	57.6	348.8	311.9	660.7
<i>Difference</i>	-22.6	-150.5	-178.9	-329.4

Explanation:

Actual costs for personnel and operating was much greater than planned because moose surveys and predation studies implemented in Unit 19D (East). Predation studies required radiocollaring both adults and calves to determine movements and sources of mortality.

Submitted by:

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Management Coordinator

**The Status of Alaska Moose and
Factors Influencing Their Populations in Region V**

REGIONWIDE ACTIVITIES

ACTIVITY 1: Draft a moose management report.

ACTIVITY 2: Write an annual survey and inventory performance report.

ACTIVITY 3: Provide information on moose to the Board of Game.

None.

UNIT 18

ACTIVITY 1: Conduct fall aerial sex and age composition surveys and winter recruitment surveys of the Yukon River population.

No fall aerial surveys were conducted during this reporting period.

ACTIVITY 2: Conduct spring aerial surveys (trend area surveys, distribution surveys, or calf production surveys) along the Yukon River to assess population trend and recruitment.

Spring calving surveys were conducted along the Yukon River in the Lowest Yukon count area (below Mt. Village) and in the Paimiut count area (above Pilot Station). In the Lowest Yukon count area, 55 moose were classified including 12 bulls, 16 cows, 19 yearlings, and 8 calves from 4 sets of twins. In the Paimiut count area, 146 moose were classified including 26 bulls, 45 cows, 12 unknown adults, 37 yearlings, and 22 calves but only 2 sets of twins.

ACTIVITY 3: Conduct a geostatistical population estimation survey, riparian zone minimum direct count survey, or other appropriate census technique, to estimate the size of the moose population on the Yukon River.

We initiated a population estimation survey along the Yukon River, but were only able to complete the stratification portion of the survey before conditions deteriorated.

ACTIVITY 4: Conduct fall and/or midwinter trend area surveys or distribution surveys of the Kuskokwim River and its major drainages to assess the status and estimated size of the Kuskokwim River population.

No work was completed on this activity during this reporting period.

ACTIVITY 5: Conduct a geostatistical population estimation survey, riparian zone minimum direct count survey, or other appropriate census technique to estimate the size of the moose population on the Kuskokwim River.

No work was completed on this activity during this reporting period.

ACTIVITY 6: Monitor moose distribution and utilization of the smaller drainages in Unit 18 through trend area surveys, distribution surveys, public contacts, and field observations.

We collected informal hunter reports of moose in the minor drainages throughout Unit 18. One trend count was completed to compare the number of moose along the Yukon River near Russian Mission to the number of moose in the Lower Kuskokwim drainage. We found 5.6 moose per hour in the Kuskokwim drainage and 266 moose per hour along the Yukon River.

ACTIVITY 7: Monitor overall hunting activity through harvest reporting, hunter contacts, and field observations.

Harvest information is derived from harvest reports and is not yet finalized. To improve compliance with the reporting requirement, we initiated an incentive program involving a prize drawing. Preliminary results are encouraging because harvest reporting has improved.

ACTIVITY 8: Establish a hunter checkstation on the Yukon and Kuskokwim Rivers to assess hunter harvest and effort.

We contacted hunters during the moose-hunting season from a boat on the Kuskokwim River and from a fixed check station on the Yukon River. We contacted 48 hunters on the Kuskokwim River, but no moose were checked. We contacted 123 hunters at the Yukon River check station and checked 29 moose.

ACTIVITY 9: Monitor other mortality factors through public contacts and field observations.

We heard of several moose that had been killed by wolves from hunters and calls from the public. Most of these came from Yukon River communities. We counted 4 black bears during calving surveys in the Paimiut count area and found abundant bear sign during peregrine falcon surveys. We suspect that bear predation on calves in the Paimiut count area is becoming more important.

ACTIVITY 10: Improve communication with the public to reduce the magnitude of unreported hunter harvests.

We included the LKAC chair in the survey comparing the number of moose along the Yukon River near Russian Mission to the number of moose along the Kuskokwim River. We continue to contribute articles to a local newspaper and regularly focus on moose management.

ACTIVITY 11: Work with the Association of Village Council Presidents (AVCP), Kuskokwim Native Association (KNA), The Kuskokwim Corporation

(TKC), U.S. Fish and Wildlife Service (FWS), Unit 19 and 21A, E area biologist affected Advisory Committees and local moose hunters to resolve conflicts between upriver and downriver uses.

Our hunter checks on the Yukon River and on the Kuskokwim River addressed upriver and downriver user conflicts.

ACTIVITY 12: Monitor moose populations in the smaller drainages and continue educational efforts toward increasing the populations in these areas.

No work was completed on this activity during this reporting period.

ACTIVITY 13: Improve harvest reporting and compliance with hunting regulations through incentive programs and public education.

To improve compliance with the reporting requirement, we initiated an incentive program involving a prize drawing. Preliminary results are encouraging because harvest reporting has improved.

ACTIVITY 14: Develop an ongoing cooperative moose management strategy for the Kuskokwim River moose population with the Lower Kuskokwim Advisory Committee, the Yukon Delta National Wildlife Refuge (YDNWR), and interested local groups and communities.

We initiated discussions with the Lower Kuskokwim Advisory Committee (LKAC) and the USFWS to develop a strategy to increase the number of moose along the Kuskokwim River that the public would accept.

UNIT 22

ACTIVITY 1: Conduct a geostatistical estimation survey or a riparian zone minimum direct count survey in a portion of Unit 22 to monitor trends in population size, sex/age composition, and recruitment.

In March 2001 we completed a moose census of Unit 22C. An estimate of 557 moose (90% C.I. 491–623 (+/-11.9%)) suggests a 16 percent increase in population size since 1995. Also 34 calves:100 adults were found.

A survey of moose habitat in Unit 22E was completed 12–14 April 2001 to determine population size and short yearling recruitment. This survey resulted in a direct count of 169 moose (157 adults and 12 calves) with an 8% recruitment rate. In 2001 the survey area was expanded to include the Nugnugalugtuk drainage. In the original census area 152 moose were found which is a 23% decline this the 1996 estimate of 196 moose. The recruitment rate was half the previous estimate of 16%

Activity 2: Complete trend area surveys, sex and age composition surveys or, where appropriate in Unit 22, during late fall and early spring to provide an index of moose population status and trends, sex and age composition, and yearling recruitment.

In November 2000 Nome staff completed moose composition surveys in portions of Units 22B, 22C, and 22D. In western Unit 22B, 8 calves:100 cows and 27 bulls:100 cows were found (N=115) indicating that calf survival remains very low and that the bull:cow ratio has declined somewhat since the mid 1990s. In 22C, 25 calves:100 cows and 10 bulls:100 cows were observed (N=85) which is similar to past survey results. In accessible portions of Unit 22D near the road system, 11 calves:100 cows and 16 bulls:100 cows were observed (N= 216). Both of these ratios have declined substantially since 1996. In less accessible portions of Unit 22D, 23 calves:100 cows and 44 bulls:100 cows were found (N=318).

ACTIVITY 3: Monitor human and natural mortality factors affecting the population.

Human harvest was monitored through the harvest ticket reporting system and village harvest surveys. No surveys were attempted to determine natural mortality rates of Seward Peninsula moose. However, anecdotal evidence indicates that bear predation on moose calves is depressing moose populations in much of the unit and bear predation on adult moose was believed to be unusually high during the last two springs when deep snow conditions prevailed into late May. In Unit 22C many moose were observed to be in poor condition in late winter and examination of bone marrow from leg bones of mortalities found in the field indicated that some moose, particularly yearlings, died of starvation.

ACTIVITY 4: Evaluate hunting mortality by analyzing all moose harvest data.

The total reported harvest from Unit 22 was 221 moose (194 males and 27 females). The general season reported harvest for each portion of the unit was: Unit 22A –15; Unit 22B –54; Unit 22C –37; Unit 22D –76; Unit 22E –22; and unit unknown–1. In the Unit 22C, 16 cows were taken by registration permit. Of the 516 individuals who reported hunting in Unit 22, 465(90%) were residents of Alaska, 381(74%%) were residents of Unit 22, 46 (9%) were nonresidents and 5 (1%) were of unknown residency. Hunter success rate was 40%.

ACTIVITY 5: Improve harvest reporting through public education and improved communication and by conducting village harvest surveys.

The importance of harvest reporting was emphasized at village meetings. However village surveys remain a far more effective method of obtaining harvest data. In 2000–2001 big game harvest surveys were conducted in Brevig, Teller, Shishmaref, and Wales. Brevig residents reported harvesting 23 moose, only 17% (4) of which had been reported by harvest ticket. Teller residents reported a harvest of 7 moose and 86% (6) of the harvest was reported by harvest ticket. In Shishmaref, 44 moose were reported harvested, 23% (10) of which were reported by harvest ticket and Wales residents reported harvesting 13 moose, 69% (9) of which had been reported by harvest ticket.

UNIT 23

ACTIVITY 1: Conduct geostatistical population estimation surveys, sex and age composition surveys, and calf survival counts where appropriate in

the unit to monitor trends in population density, sex and age composition, and recruitment.

A census was conducted in the lower Noatak and upper Squirrel River drainages during April. Density in the overall area was 0.33 moose/mi² and the calf:adult ratio was 10:100.

ACTIVITY 2: Monitor hunting activity and harvests through the statewide harvest ticket system, community-based harvest assessments, public contacts and field observations.

The statewide harvest ticket system indicated 389 hunters harvested 161 moose (41% success rate). This continued the trends of increasing numbers of nonlocal hunters and slowly declining success rates in Unit 23.

ACTIVITY 3: Continue the Unit 23 User Issues planning process to minimize user-group conflicts in relation to biological parameters of moose.

Two meetings were held to discuss user conflicts in the Squirrel and upper Kobuk drainages. There was general agreement, but not consensus, that conflicts among user groups are serious in portions of Unit 23.

ACTIVITY 4: Communicate with the public to improve compliance with regulations and reporting requirements.

Moose management was discussed with Advisory Committees and individuals who live in Unit 23.

ACTIVITY 5: Possibly conduct radiotelemetry projects to delineate census areas and monitor adult mortality.

No telemetry projects were conducted in Unit 23.

UNIT 26A

ACTIVITY 1: Survey unit-wide riparian zones and other suitable areas of willow habitat, using trend area surveys, riparian zone minimum direct count surveys, or other appropriate census techniques to estimate the size of the moose population in Unit 26A to determine if sufficient animals are present to reestablish a hunt.

We conducted a riparian zone minimum direct count survey in the core moose habitat area of the Colville, Chandler, and Anaktuvuk Rivers on 5 and 6 April, 2001. We counted a total of 386 moose, 333 of which were in our standard trend count area. In the trend area there were 251 adults and 82 short yearlings that had survived the winter (25%).

ACTIVITY 2: Conduct a fall aerial sex and age composition survey of the Colville River population.

We attempted to conduct a fall sex and age composition survey in early November 2001, but were prevented from doing so by weather for the first time in 10 years.

ACTIVITY 3: Conduct spring, summer, and fall radio telemetry moose movement surveys to examine calf production and survival and adult distribution and mortality rates.

We conducted spring radiotracking surveys on 6 and 25 April. We observed 32 cows with 17 short yearlings that had survived the winter (53 calves per 100 cows) and 2 sets of twins. We flew calving surveys on 4 and 5 June, 2001 and observed 19 collared cows which had a total of 16 calves (84 calves per 100 cows).

ACTIVITY 4: Monitor predator populations by logging bear and wolf observations during moose surveys.

We did not see any wolves or bears during the surveys.

ACTIVITY 5: Examine dead moose to look for causes of death, disease, mineral deficiencies, and contaminants.

We did not find any dead moose fresh enough to necropsy this year.

Other activities funded by Federal Aid on this project:

None.

Segment Period Project Costs:

		Region				Statewide
2000–2001	I	II	III	V		Total
Actual	75.0	321.9	660.7	137.9		1195.5

Statewide Total: \$1,195,500